

- 15 -

Claims:

1. A hybrid lighting system comprising:

at least one light collector for generating an output
5 of fluorescent light, the light collector comprising an
optically transmissive material that is doped with
dispersed dye molecules which are arranged to absorb
incoming light and to emit fluorescent light and

10 at least one electrically powered light emitting
device that, in use, supplements the output of the light
collector to providing light of a predetermined spectral
characteristic.

2. The hybrid lighting system as claimed in claim 1

15 wherein the or each electrically powered light emitting
device is arranged to supplement the emitted fluorescence
radiation by providing light of at least one particular
colour such that the addition of the light from the or
each electrically powered light emitting device to the
20 emitted fluorescent light results in light having a
predetermined colour.

3. The hybrid lighting system as claimed in claim 2
wherein the predetermined colour is white.

25

4. The hybrid lighting system as claimed in any one of
the preceding claims comprising a light collector sheet
that in use emits green fluorescence light and the green
fluorescence light is supplemented by red and blue light
30 emitting devices.

- 16 -

5. The hybrid lighting system as claimed in claim 4 wherein the blue light emitting device is arranged to emit approximately 2-20% of the total amount of lumens generated by the system and the red light emitting device
5 is arranged to emit approximately 15-30% of the total amount of lumens generated by the system.

10 6. The hybrid lighting system as claimed in any one of claims 1 to 3 comprising light collector sheets that emit green and red light and in use the green and red fluorescence light is supplemented by light from a blue light emitting device.

15 7. The hybrid lighting system as claimed in claim 6 wherein the blue light emitting device is arranged to emit approximately 2-20% of the total amount of lumens generated by the system.

20 8. The hybrid lighting system as claimed in any one of the preceding claims comprising an optical cable that is arranged to guide light from the or each light collector and the or each electrically powered light emitting device.

25 9. The hybrid lighting system as claimed in claim 8 when dependent on any one of claims 1 to 3 wherein one of three colours required for the generation of white light is generated by the electrically powered light source and the optical cable has a cross-sectional area through which, in use, light is guided and that is reduced by approximately 1/3 compared to a lighting system in which all colours for the generation of the white light are generated by light collector sheets.

- 17 -

10. The hybrid lighting system as claimed in claim 8 when dependent on any one of claims 1 to 3 wherein two of the colours are generated by electrically powered light sources and the optical cable has a cross-sectional area
5 through which, in use, light is guided and that is reduced by approximately 2/3 compared to a lighting system in which all colours for the generation of the white light are generated by light collector sheets.
- 10 11. The hybrid lighting system as claimed in any one of the preceding claims wherein the or each electrically powered light emitting device is also arranged to supplement for an intensity deficiency of the output.
- 15 12. The hybrid lighting system as claimed in claim 11 when dependent on any one of claims 1 to 3 comprising electrically powered light emitting devices that are arranged for the emission of red, green and blue light.
- 20 13. The hybrid lighting system as claimed in any one of the preceding claims comprising at least one light guide and the or each electrically powered light emitting device is coupled to the or each light guide by means of a prism.
- 25 14. The hybrid lighting system as claimed in any one of claims 1 to 12 comprising at least one light guide and the or each electrically powered light emitting device is coupled to the or each light guide by means of an optical fibre.
- 30 15. The hybrid lighting system as claimed in any one of claims 1 to 12 comprising at least one light guide and the

- 18 -

or each electrically powered light emitting device is coupled to the or each light guide by means of a lens.

16. The hybrid lighting system as claimed in any one of
5 the preceding claims wherein the or each electrically powered light emitting device is implanted into the or a respective ones of the light guides.

10 17. The hybrid lighting system as claimed in any one of claims 1 to 15 wherein the or each electrically powered light emitting device is coupled to a respective light transmissive sheet that is coupled to the or each respective light guide.

15

18. The hybrid lighting system as claimed in any one of claims 1 to 15 comprising a luminaire arranged to emit light and wherein the light from the or each electrically powered light emitting device is mixed within the
20 luminaire with light from the or each light collector sheet.

19. The hybrid lighting system of claim 18 in which the or each light collector sheet is coupled to the luminaire
25 without an intervening separate light guide.

20. The hybrid lighting system as claimed in any one of claims 1 to 15 wherein the or each electrically powered light emitting device is mounted in a luminaire which is
30 used to emit light and to which the or each light guide is coupled.

- 19 -

21. The hybrid lighting system as claimed in any one of claims 1 to 15 wherein the or each electrically powered light emitting device is mounted adjacent to a luminaire which is used to emit light and to which the or each light guide is coupled.

22. The hybrid system as claimed in any one of the preceding claims wherein the or each electrically powered light emitting device is powered by a battery.

10

23. The hybrid system as claimed in any one of claims 1 to 21 wherein the or each electrically powered light emitting device is powered by a solar cell.

15 24. The hybrid system as claimed in claim 22 wherein the battery is charged by a solar cell.

25. The hybrid lighting system as claimed in any one of the preceding claims wherein the output of the or each 20 electrically powered light emitting device in combination with the output from the or each light collector is controllable to generate light of controlled colour shades.

25 26. The hybrid lighting system as claimed in any one of the preceding claims wherein a property of the output is electronically controlled.

30 27. The hybrid lighting system as claimed in any one of claims 2 or 3 to 26 when dependent on claim 2 comprising more than one light emitting devices of the or each particular colour that is in use supplemented.

- 20 -

28. The hybrid lighting system as claimed in any one of the preceding claims wherein the or each light emitting device is a light emitting diodes (LED).